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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/585,629 | 07/11/2006 | Nobuhiro Ito | 14633.9USWO | 6530 |
| 52835 7590 03/01/2010 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902 | | | | |
| EXAMINER | | | | |
| MABRY, JOHN | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1625 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/585,629

Applicant(s)

ITO ET AL.

Examiner

JOHN MABRY

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

Response to Applicant's Remarks

Applicant's response on June 1, 2009 filed in response to the Election/Restriction dated April 10, 2009 has been received and duly noted. The Examiner acknowledges Applicants' election of Group I without traverse.

Thus, the restriction requirement is deemed proper and **FINAL**.

Applicant's response on November 25, 2009 filed in response to the Office Action dated August 25, 2009 has been received and duly noted.

In view of this response, the status of the rejections/objections of record is as follows:

Status of the Claims

Claims 1-13 are pending and rejected.

Claim 13 is new.

35 USC § 112 Rejection(s)

The 112-2nd rejection of claims 10 regarding the phrase "alkylene" have been overcome in view of Applicant's amendment to the claim.

The 112-1st rejection of claims 1-9 regarding the scope of enablement for deuteration of an aromatic ring using a combination of catalysts selected from: platinum, palladium, rhodium, iridium, ruthenium, nickel and cobalt – with the exception of

platinum/palladium catalyst mixture have not been overcome in view of Applicant's arguments.

An applicant argues that the Specification is enabled for use of all catalysts as claimed and combinations thereof and that "there is no absolute requirement to provide even one working example to satisfy enablement". This is indeed true; however, Applicant is required provide guidance to one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation.

As previously stated, it is not trivial to experimentally interchange any and all of the many substituents and catalysts that exist. As described by F. Zaragoza Dörwald, most organic syntheses fail initially and chemical research is highly inefficient due to chemists spending most of their time "finding out what went wrong and why". Therefore, most syntheses of organic compounds are labor-intensive and demanding. Additionally, most final synthetic routes to desired organic molecules are usually very different from initially planned routes. A highly skilled chemist can agree that for many successful organic compounds made, many failures are encountered and experimental repetition is common. This also contributes to the burden and unpredictability of the syntheses of said compounds. (see "Side Reactions in Organic Synthesis: A Guide to Successful Synthesis Design" 2005 Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim.

Applicant cites the reference, Synthesis 2008, 9, 1467-1478, to support that Applicant was enabled for the entire scope of the claimed invention by showing working conditions other than examples 1-10 of present application. This information is not

persuasive. This reference has a publication date of 2008 which is post-art and furthermore, Applicant's claimed invention is based upon information submitted by Applicant at the time of the invention was filed.

Claim Rejections - 35 USC § 102

Claims 1-8 and 10 are withdrawn under 35 U.S.C. 102(b) as being anticipated by Kalpala et al (Green Chemistry 2003, 5, 670-676).

Claim Rejections - 35 USC § 103

Rejection of claims 1-10 and 12 are maintained under 35 U.S.C. 103(a) as being unpatentable over Sajiki et al (Synlett 2002, 7, 1149-1151)(PTO-1449) in view of Kozo et al (Bull. Chem. Soc. Japan 1962, 2, 228-232).

Applicant's argues that due to slightly different working conditions such as temperature and degree of deuteration that there would be no basis to combine the two references. Examiner disagrees.

As discussed in previous Office Action, an artisan of ordinary skill would be motivated to combined the prior art references of Sajiki and Kozo to achieved the instantly claimed invention for the following reasons. Sajiki uses only one catalyst in the reaction mixture for deuteration of an aromatic ring which on the alkyl chain bonded to the aromatic moiety of the tested substrates. The Kozo reference discloses that use of platinum in a similar process deuterates the hydrogens on the aromatic portion of the substrates. One of ordinarily skill would be motivated (obvious to try) the use the

references of Sajiki and Kozo in order to achieve deuteration (H-D exchange) at both substituents positions and on the aromatic portions of aromatic ring compounds.

The adjustment of particular conventional working conditions (e.g. determining result effective amounts of the ingredients beneficially taught by the cited references, as well as adjustment of reaction temperature, reaction time, use of solvents, temperatures, is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan (*In re* Mostovych, Weber, Mitchell and Aulbach, 144 USPQ 38). Accordingly, these types of modifications would have been well within the purview of the skilled artisan and no more than an effort to optimize results.

Obviousness-Type Double Patenting Rejection(s)

The obviousness-type double patenting rejections have been overcome over Application No. 10/521,531 and US Application No. 10/539,188. These applications are still being prosecuted. If the claims conflict at any point during prosecution, this rejection will be applicable.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Applicant is respectfully reminded that it is required that all claims be amended to elected group. Examiner also warns Applicant not to introduce new matter when amending.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Mabry, PhD whose telephone number is (571) 270-1967. The examiner can normally be reached on M-F from 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's primary examiner can be reached at (571) 272-0684, first, or the Examiner's supervisor,

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Janet Andres, PhD, can be reached at (571) 272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/John Mabry/
Examiner
Art Unit 1625

/Rita J. Desai/

Primary Examiner, Art Unit 1625